

AMENDMENTS TO THE CLAIMS

Claims 1 – 152 (Canceled)

153. (Currently amended) A method of operating a fluid control valve, said method comprising:

providing a valve including a valve control chamber, a valve seat, a fluid flow path through said valve seat, a valve diaphragm, and a valve actuator, and providing a pilot valve;

holding said valve diaphragm closed with the force of said valve actuator in an inactive state;
[[and]]

pneumatically reducing the force of said valve actuator against said valve diaphragm while changing the pressure in said valve chamber to hold said valve diaphragm closed to create an active shut valve state; and

releasing the pressure in said valve control chamber to open said flow path through said valve seat to create an active open valve state, wherein said releasing comprises venting said valve control chamber through said pilot valve wherein said pilot valve is a three-way normally open valve, said providing further comprises providing a source of pressurized fluid, said changing the pressure in said valve chamber comprises connecting said valve chamber to said pressure source, and said releasing further comprises actuating said pilot valve to disconnect said valve chamber from said pressure source.

154. (Previously presented) A method as in claim 153 wherein said valve diaphragm is located between said valve control chamber and said valve seat, and said changing the pressure in said valve chamber comprises increasing the pressure in said valve chamber.

155. (Previously presented) A method as in claim 153 wherein said providing further comprises providing a piston connected to said valve actuator, and said pneumatically reducing comprises pneumatically forcing said piston connected away from said valve diaphragm.

156. (Previously presented) A method as in claim 155, and further comprising releasing said force on said piston to disable flow through said valve seat when said diaphragm fails.

Claims 157 – 159 (Canceled)

160. (Currently amended) A method as in claim [[159]] 153, and further comprising de-actuating said pilot valve to connect said valve chamber to said source of pressurized fluid to disable said fluid flow through said valve seat.

161. (Previously presented) A method as in claim 160 wherein the response time for said disabling said fluid flow through said valve seat is one millisecond or less.

162. (Previously presented) A method as in claim 160 wherein the response time for said disabling said fluid flow through said valve seat is one-half millisecond or less.

163. (Previously presented) A method as in claim 153, and further comprising adjusting the conductance of fluid flow path through said valve seat, wherein said adjusting is performed externally of said fluid valve.

164. (Previously presented) A method as in claim 163 wherein said providing further comprises providing a restricted gap between said valve actuator and said valve diaphragm when said valve actuator is released, and said adjusting comprises adjusting the travel of said valve actuator, thereby controlling the size of said restricted gap.

165. (Previously presented) A method as in claim 153, and further comprising controlling the pulsed delivery of gas into an atomic layer deposition (ALD) apparatus using said fluid control valve.

Claims 166 and 167 (Canceled)